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TITLE: COMPUTER WORKSTATION WITH MOVEABLE MONITOR SUPPORT

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COMPUTER WORKSTATION WITH MOVEABLE MONITOR SUPPORT

This application claims the benefit of U.S. Provisional Application Serial No. 60/455,784, filed March 19, 2003, the entire disclosure of which is hereby incorporated herein by reference.

BACKGROUND

The present invention relates generally to a computer workstation, and in particular, to a computer workstation having a moveable monitor support.

Workstations can be configured with a monitor support that is moveably supported by a worksurface, as shown for example in U.S. Patent No. 4,515,086 to Kweicinski et al. and U.S. Patent Application Publication US 2002/0020329 to Kowalski. In such workstations, the user can adjust the position of the monitor to accommodate their particular needs, for example if they are reclining in a chair. Other workstations are configured with a moveable worksurface, as shown for example in U.S. Patent No. 5,172,641 to Auer. Again, the user can adjust the position of the worksurface to accommodate their particular needs. As shown in U.S. Patent No. 4,717,112, some workstations can be configured with multiple support members that are moveable relative to each other.

In many instances, the user of such workstations is seated at the workstation in a tiltable chair. Typically, as the user tilts rearwardly, the position of the eyes of the user travels rearwardly at a greater rate and to a greater distance relative to a monitor positioned at the workstation than does the position of the hands of the user located at a keyboard positioned on the workstation. Accordingly, the user is typically required to independently readjust one or both of the worksurfaces, if moveable, and the monitor support, if moveable, when reclining to different positions to maintain an optimum position of each relative to the user, and in particular to the eyes and hands of the user.

BRIEF SUMMARY

Briefly stated, in one aspect, one embodiment of a computer workstation includes a worksurface moveable a first distance between first and second worksurface positions and a monitor support coupled to the worksurface. At least one of the worksurface and the monitor support is automatically moveable in response to a movement of the other of the worksurface and the monitor support. The monitor support is moveable a second distance between first and second monitor positions as the worksurface is moved the first distance between the first and second worksurface positions, wherein the second distance is greater than the first distance.

In an exemplary embodiment, the second distance is between about 1.5 and 3.0 times the first distance. In one preferred embodiment, the second distance is about 2.0 times the first distance.

In another embodiment, a computer workstation includes a base having a first rack, a worksurface moveably supported by the base and having a pinion gear rotatably mounted thereto, and a monitor support moveably supported by the worksurface and having a second rack. The pinion gear is disposed between and engages the first and second racks.

In another embodiment, the worksurface is connected to a first drive device and the monitor support is connected to a second drive device. The monitor support and the worksurface are coupled with a controller, which is operably connected to the first and second drive devices. The controller automatically and simultaneously actuates the drive devices to move the worksurface and monitor support.

In another embodiment, the worksurface is connected to the monitor support. The monitor support rotates about a horizontal axis, such that the worksurface moves a lesser distance than the monitor support relative to the user.

In another aspect, a computer workstation includes a base structure and a monitor support rotatably and translatably coupled to the base structure. The monitor support is translatable between first and second positions, wherein the

monitor support rotates about a horizontal axis as the monitor support is translated between the first and second positions. A worksurface is connected to the monitor support and is rotatable with the monitor support about the horizontal axis as the monitor support is translated between the first and second positions.

In another aspect, a method of adjusting the position of a monitor support on a computer workstation includes moving a worksurface a first distance between first and second worksurface positions, and automatically moving a monitor support a second distance between first and second monitor positions in response to moving the worksurface the first distance between the first and second worksurface positions. The second distance is greater than the first distance.

The various aspects and embodiments provide significant advantages over other workstations. For example and without limitation, movement of either of the monitor support or worksurface causes the other thereof to move, with the monitor support moving a greater distance than the worksurface. In this way, the monitor support is maintained substantially the same distance from the eyes of the user as the user tilts rearwardly in the chair and adjusts the position of the worksurface to accommodate the position of the hands of the user.

The foregoing paragraphs have been provided by way of general introduction, and are not intended to limit the scope of the following claims. The presently preferred embodiments, together with further advantages, will be best understood by reference to the following detailed description taken in conjunction with the accompanying drawings.

BRIEF DESCRIPTION OF SEVERAL VIEWS OF THE DRAWINGS

FIGURE 1 is a top perspective view of a workstation.

FIGURE 2 is an exploded side perspective view of the workstation.

FIGURE 3 is a partial side view of the workstation.

FIGURE 4 is an exploded, schematic side view of the workstation.

FIGURE 5 is an exploded, schematic front view of a monitor support.

FIGURE 6 is a partial, exploded schematic view of monitor support adjustment device.

FIGURE 7 is a partial, schematic view of a keyboard support adjustment device.

FIGURE 8 is a partial schematic of the workstation being moved between a first and second position.

FIGURE 9 is a top perspective view of an alternative embodiment of a partial workstation.

FIGURE 10 is as rear perspective view of the workstation shown in Figure 9.

FIGURE 11 is a cross-sectional view of a portion of the workstation shown in Figure 9.

FIGURE 12 is a schematic view of an alternative embodiment of a workstation.

FIGURE 13 is a schematic view of an alternative embodiment of a workstation.

FIGURE 14 is a side view of alternative embodiment of a workstation showing the monitor, monitor support and worksurface in first and second positions.

FIGURE 15 is a side view of alternative embodiment of a workstation showing the monitor, monitor support and worksurface in first and second positions.

FIGURE 16 is a side view of a support mechanism for the monitor support and monitor shown in Figure 14.

FIGURE 17 is a bottom perspective view of the support mechanism, monitor support and monitor shown in Figure 16.

FIGURE 18 is a side view of an alternative embodiment of a workstation showing the monitor, monitor support and worksurface in first and second positions.

FIGURE 19 is a side view of an alternative embodiment of a workstation showing the monitor, monitor support and worksurface in first and second positions.

FIGURE 20 is a bottom perspective view of the workstation shown in Figure 18.

DETAILED DESCRIPTION OF THE PRESENTLY PREFERRED EMBODIMENTS

Referring to FIGS. 1-4, a first embodiment of the workstation **2** includes a base **4** and a worksurface **6** moveably supported on the base **4**. The base **4** can be made as a stand-alone support, or it can be situated on an existing, fixed worksurface, such as a desktop. In one preferred embodiment, the base **4** is moveably supported on an upright **8** with a plurality of rollers, such that the base can be moved vertically to a desired position. The upright **8** is connected to a foot support **11** and is secured thereto with a pair of caps **17**, a plate assembly **19** and a lead screw **15**. It should be understood that the term "worksurface," as used herein, means any surface capable of supporting an object, e.g., a keyboard, a mouse, a document holder, papers, etc., and includes for example and without limitations monitor supports, desktops and keyboard trays.

A worksurface **6** includes a plurality of guide rollers **10** that engage tracks **12** formed on the base **4**. It should be understood that the guide rollers **110** can be mounted on the base **104** and engage tracks **112** formed on the worksurface, as shown for example in FIG. 11. In either embodiment, the guide rollers **10, 110** limit the movement of the worksurface **6, 106** relative to the base **4, 104** to a generally fore-aft direction, thereby preventing the worksurface from rotating about a vertical axis and/or from moving in the lateral direction. It should be understood that the directions "fore" and "aft" refer to the position of the various components relative to the user, with "fore" being proximate or toward the user and "aft" being distal or away from the user. The term "lateral" means side-to-side. The guide rollers **10** can further limit the fore-aft movement of the

worksurface **6**, as the rollers **10** engage respectively the front and rear ends **16, 18** of the track **12**, as shown in FIG. 3.

Referring to FIGS. 1-4, the worksurface **6** is further supported on a plurality of support rollers **14** that are rotatably mounted to the base **4**. Again, it should be understood that the support rollers can alternatively be rotatably mounted on the worksurface and engage the base, or can be done away with altogether as the guide rollers support the worksurface on the base. The support rollers **14** carry and transfer the vertical load from the worksurface **6** to the base **4** as the worksurface moves in the fore-aft direction. In another embodiment (not shown), the worksurface is slidably coupled to and supported by the base, for example with a slide/guide device.

Referring to FIGS. 1-4 and 12, a monitor support **22, 122** is moveably supported on the worksurface **6, 106**. In one embodiment, the monitor support **22** is configured with a plurality of wheels or support rollers **24**, which roll and are supported on the moveable worksurface **6**. In an alternative embodiment, the support rollers are mounted on the worksurface and support the monitor support, or are omitted altogether, e.g., when one or more pinion gears carries the load of the monitor support. In other embodiments, the monitor support is slidably connected to the worksurface, allowing the monitor support to slide relative thereto.

Referring to FIGS. 1-4 and 12, the monitor support **22, 122** is coupled to the worksurface **6, 106**, such that movement of either of the worksurface or monitor support automatically moves the other thereof. The term "coupled" generally means connected to or engaged with whether directly or indirectly, for example with an intervening member, and does not require the engagement to be fixed or permanent, although it may be fixed or permanent, and includes both mechanical and electrical connection. In one embodiment, the base **4, 104** is configured with one or more gears **26, 126** (shown as two in one embodiment). In one embodiment, the gears **26, 126** are formed as linear gears or racks that extend in the fore-aft direction. It should be understood that in other embodiments, the gears on the base can be configured as rotary gears or non-linear gears.

The monitor support **22, 122** is configured with one or more gears **32, 132** mounted to the bottom thereof. In one embodiment, the gears **32, 132** are formed as linear gears or racks that extend in the fore-aft direction and face the gears disposed on the base. It should be understood that in other embodiments, the gears on the base and monitor support can be configured as rotary gears or non-linear gears. One or more pinion gears **28, 128** are rotatably mounted in one or more openings **30** formed in the worksurface **6, 106**. The pinion gears **28, 128** are disposed between and are engaged with the gears **26, 126, 32, 132**. In this embodiment, the engagement between the gears **32, 132** and the pinion gears **28, 128** couples the monitor support **22, 122** to the worksurface **6, 106**, which is coupled to the base **4, 104**. In this embodiment, therefore, the monitor support is also coupled to the base by way of the worksurface. The linear gears **26, 126, 32, 132** can be formed integrally on the base **4, 104** and monitor support **22, 122** respectively, or can be made as separate components mounted thereto.

In operation, the user, who is preferably seated, pulls or pushes the moveable worksurface **6, 106** in a fore-aft direction **31** toward or away from them respectively. In one embodiment, the worksurface **6** is provided with a handle or other grippable element **34** to facilitate the movement of the worksurface.

In another embodiment, shown in FIG. 4, a motor **33** is connected to the pinion gear, e.g., by way of a drive shaft. The motor is electrically connected to a controller **35**, such as a switch, which can be actuated by the user. The controller can also be configured as a programmable controller or a computer, which can be programmed to automatically move the motor based on certain parameters. In this way, the controller can be programmed to accommodate the particular needs of an individual user, and can have for example several preset options that can be selected by the user. The controller can also include and be configured with an actuator **37**, such as one or more push buttons, toggle switches, joy sticks or other known devices, to allow the user to actuate the motor **33** and turn the motor **33** in either direction so as to effect a forward or rearward movement of the worksurface **6** and monitor support **22**. In one embodiment, the worksurface and monitor support can be both manually adjusted and adjusted by way of the controller.

In one anticipated use, a user is positioned in front of the workstation **2** in a tiltable chair. Referring to FIGS. 4 and 8, as the user tilts rearwardly in the chair, the user pulls the moveable worksurface **6** toward them a first distance (D1) in a first direction from a first worksurface position (WP1) to a second worksurface position (WP2), such that a keyboard **36** positioned thereon is maintained in the same location relative to the hands of the user. As the worksurface **6** is pulled toward the user in the first direction, the rack(s) **26** on the base **4** engage and rotate the pinion gear(s) **28** rotatably mounted on the worksurface **6**. The pinion gear(s) **28** in turn engage the linear rack(s) **32** on the monitor support **22** and moves the monitor support a second distance (D2) relative to the worksurface in the first direction from a first monitor support position (MSP1) to a second monitor support position (MPS2).

As a result, the monitor support **22**, and a monitor supported thereon, moves in the first direction toward the user at a greater rate than the moveable worksurface **6**. In particular, the second distance (D2) moved by the monitor support **22** is greater than the first distance (D1) moved by the worksurface **6**. It should be understood that other gear arrangements and configurations can be disposed between and couple the monitor support and worksurface (and/or base) to effect relative movements thereof. In one embodiment, the monitor support **22** moves toward or away from the user at a ratio of between about 1.5:1 and 3:1 relative to the moveable worksurface, and preferably at a ratio of about 2:1. In essence, the monitor support **22** moves toward and away from a user at a greater rate and distance than the worksurface **6**. This differential movement maintains the proper position of a monitor **38** situated on the monitor support **22** and a keyboard **36** situated on the moveable worksurface relative to the eyes and hands of the user respectively as the user tilts rearwardly in a chair. The operation of the workstation shown in FIGS. 9-11 works in the same manner.

It should be understood that the monitor support can also be grasped and moved, which effects an automatic movement of the worksurface. As used herein, the reference to automatically moving the monitor support in response to moving the worksurface simply means that the worksurface and monitor support are

coupled to automatically move relative to each other, regardless of which member is actually acted upon by the user or drive device, and includes without limitation the situation where the monitor support is acted upon by the user, the situation where the worksurface is acted upon by the user, and the situation where one or both of the worksurface and monitor support are acted upon by one or more drive devices.

Referring to FIGS. 12 and 13, another embodiment of the workstation includes a first drive device **302**, shown as a motor, coupled to a first gear **306, 312** on the monitor support **22** and a second drive device **300**, also shown as a motor, coupled to a second gear **304** on the worksurface **6**. In both embodiments, the second gear **304** engages a rack **308** on the base. In the embodiment of FIG. 12, the first gear **306** engages a gear **310**, configured as a linear rack, formed on the worksurface **6**, while in the embodiment of FIG. 13, the first gear **312** engages a gear **314**, configured as a linear rack, formed on the base **4**. Also in the embodiment of FIG. 13, the monitor support **22** is supported on the base **4**, rather than on the worksurface. In both embodiments, the monitor support **22** is coupled to the worksurface **6** by way of the motors **300**, **302** being electrically coupled to a controller **35**. In one embodiment, the controller is mounted to the worksurface. It should be understood, however, that the controller can be mounted to any portion of the workstation, including the base.

The controller **35** can be configured as a simple switch, which can be actuated by the user, or as a programmable controller, e.g., a programmable logic controller or computer, which can be programmed to automatically move the first and second motors **302**, **300** based on certain parameters. In this way, the controller can be programmed to accommodate the particular needs of an individual user, and can have for example several preset options that can be selected by the user. The controller **35** also can include and be configured with an actuator **37**, such as one or more push buttons, toggle switches, joy sticks or other known devices, to allow the user to actuate the motors **302**, **300** and turn the motors in either direction so as to effect a forward or rearward movement of one or both of the worksurface and monitor support.

As set forth above, in the embodiments of FIGS. 12 and 13, the monitor support **22** and worksurface **6** are electrically coupled by way of the controller **35**. In this way, the controller can be programmed to move the worksurface a first distance as the monitor support is moved a second distance. The relative movement of the worksurface to the monitor support can be controlled and varied for example and without limitation, by varying the speed and gear ratios of the motors **300, 302** and gears **304, 306, 308, 310, 312, 314** respectively. As such, the movement ratio or differential is not fixed, for example at 2:1, but can be readily varied by the manufacture or end user to accommodate the individual needs of the user, while still effecting an automatic movement of the worksurface and monitor support relative to each other.

In the embodiment of FIG. 12, the monitor support **22** is supported by and moves with the worksurface **6**, such that the first motor **302** need move the monitor support only a small amount to achieve a movement differential between the worksurface and monitor support. It should be understood that other configurations and combinations of gears, motors and/or controllers can be used to couple and control the movement of the worksurface and the monitor support.

Referring to the embodiments of FIGS. 14-17, a plurality of tracks **400, 420** are secured to a base. In one embodiment, a first pair of laterally spaced tracks **400** are positioned forwardly of a second pair of laterally spaced tracks **420**. A plurality of guides **402**, or carriages, are moveably connected to the tracks and are translatable therealong. The guides **402** can include opposing pairs of rollers **404**, which engage a rib **406** as shown in FIG. 16, or can simply slide along the track. Of course, it should be understood that the track could be any surface with the guide (with or without rollers) sliding or rolling therealong.

As shown in FIGS. 16 and 17, each of the second pair of tracks **420** are directed upwardly from a rear to a front thereof while the first pair of tracks **400** are directed downwardly from a rear to a front thereof. In this way, at least one of the tracks **400, 420** is non-parallel to the plane defined by the support surface of the monitor support. In various embodiments, one or more of the tracks may oriented parallel to the plane. In one embodiment, shown in FIGS. 14, 16 and 17,

the rear tracks **420** are angled upwardly about 8 ½ degrees, while the front tracks **400** are angled downwardly about 3 ½ degrees. In another embodiment, shown in FIG. 15, the rear tracks are substantially horizontal, while the front tracks are angled downwardly about 12 degrees.

The monitor support **408** includes a plurality of brackets **410**, shown as L-shaped brackets, that are pivotally connected to corresponding ones of the guides **402**, for example with pivot pins. In this way, and with reference to FIGS. 14 and 15, as the monitor support **408** is moved forwardly, the monitor support and monitor **416** supported thereon are rotated about a horizontal axis, with the monitor both rotating and translating as the guides move along the tracks.

As shown in FIGS. 14 and 15, a worksurface **412**, shown as a keyboard support or tray, is mounted to a front portion of the monitor support **408** with one or more arms **414**. The worksurface **412** is translated and rotated with the monitor support **408**. In one preferred embodiment, the distance from the monitor face to the center of the worksurface (or keyboard situated thereon) is approximately 12 inches when the worksurface is in a home position. In addition, in one embodiment, a top support surface **418** of the monitor support is approximately 29 inches above the ground, with a ± 4.5 to 4.6 inch adjustment range, while the worksurface is approximately 27.5 inches above the ground, with a ± 3.5 to 3.6 inch adjustment range. The worksurface can also be moved up to about 6.5 inches from the home position.

In this way, it should be understood that the worksurface **412** is independently moveable relative to the monitor support **408**, for example by way of a pivot and slide, and can be moved horizontally and vertically, and/or rotated, relative thereto. However, once a desired setting or relative positioning between the worksurface **412** and monitor support **408** is achieved, the worksurface and monitor support can be moved synchronously as explained herein. In one embodiment, one or more braking devices are coupled respectively to the worksurface and monitor support to hold the worksurface and monitor support in a desired position. In one embodiment, the worksurface and monitor support can be held at any position within the range of motion of the respective components,

thereby providing the worksurface and monitor support with infinite adjustment within those ranges.

In one embodiment, the monitor support is 21 inches long by 21 inches wide, while the monitor has a maximum size of 20 inches long by 20 inches wide by 20 inches tall and a maximum weight of 75 lbs. In one embodiment, the worksurface has a minimum width of 24 inches, and preferably a width of about 30 inches, a depth of about 14 inches, a 1 ½ inch thickness and an upper recess having a ¾ inch depth, with a 2 inch front lip positioned forwardly of the recess. Of course, other dimensions and sizes would also work.

With reference to FIG. 14, the tracks **400**, **420** are oriented such that the front of the monitor support **408**, the monitor **416** supported thereon, and the center of gravity of the monitor, do not move a substantial amount in the vertical direction during the forward movement of the monitor support. Accordingly, and assuming a 75 lb monitor, the user force required to move the monitor having a center of gravity positioned from between about ½ and about 11 inches from the front of the monitor support is ± 4 lbs.

As the monitor **416** is moved in the horizontal direction, the monitor support **408** and monitor **416** are rotated such that the rear thereof is raised a small amount. For example, in one embodiment, the top front corner **422** of the monitor is moved approximately six (6) inches in a horizontal direction (Mhd), with the monitor being rotated through an angle ($\alpha 1$) approximately 3° in a clockwise direction when viewing the monitor from the right side. Likewise, the worksurface is rotated through an angle ($\beta 1$) approximately 3° in a clockwise direction when viewing the worksurface from the right side. Because of the rotation, however, the front edge **424** of the worksurface **412** is moved only about 4.82 inches in a horizontal direction (WShd), with a movement of approximately 1.24 inches in the vertical direction (WSvd). Accordingly, the monitor support is moved a greater distance in the horizontal direction than the worksurface.

In one preferred embodiment, the monitor and/or monitor support move in the horizontal direction (Mhd) about 6 inches, the worksurface moves in the horizontal direction (WShd) about 5 inches, the monitor and/or monitor support

move in the vertical direction (Mvd about 1.5 inches, the worksurface moves in the vertical direction (WSvd) about 1.25 inches, the monitor, monitor support and worksurface rotate through an angle ($\alpha 1$), ($\beta 1$) of about 3 degrees and the distance between the monitor face and the center of the worksurface is about 12 inches.

With reference to FIG. 15, the tracks **400**, **420** are oriented such that the corner **422** of the monitor supported thereon, moves in a vertical direction (Mvd) approximately 1.050 inches and moves in a horizontal direction (Mhd) approximately six (6) inches, with the monitor and worksurface again being rotated through angles ($\alpha 1$, $\beta 1$) approximately 3° in a clockwise direction when viewing the monitor and worksurface from the right side. The location of the center of gravity **426** of the monitor is moved approximately 0.722 inches in the vertical direction over a six inch horizontal movement. Accordingly, the user force required to move the monitor (assuming 75 lbs) having a center of gravity positioned from between ½ inch and 11 inches from the front of the monitor support is –7 to +15 pounds. Because of the rotation, the front edge **424** of the worksurface is moved about 4.8 inches in a horizontal direction (WShd), with a movement of approximately 2.0 inches in the vertical direction (WSvd). Accordingly, the worksurface again moves a lesser distance in the horizontal direction than the monitor and the monitor support.

Referring to FIGS. 18-20, the monitor support **408** is supported by a pair of four bar linkages **428**, with the monitor support **408** defining one bar, a base **436** defining a second bar, and a pair of links **434**, **438** connecting the first and second bars and defining the third and fourth bars respectively. In one embodiment, the monitor support includes a pair of legs **430** and a cross member **432** secured to the ends of the links **434**, **438** and defining the first bar. It should be understood that the links **434**, **438** can be directly connected to the monitor support.

In one embodiment, shown in FIGS. 18 and 20, the links **434**, **438** are not parallel to each other. Rather, the forward link **434** has a lesser angle ($\alpha 2$) relative to a horizontal plane **440** than does an angle ($\beta 2$) of the rear link. In one exemplary embodiment, the angle ($\alpha 2$) is approximately 58.9 ° while the angle ($\beta 2$) is about 71.0 degrees when the monitor support is in a forward position. In

one embodiment, the rear link **438** is about 10 inches long. Alternatively, as shown in FIG. 19, the links **434, 438** are parallel such that the four bar linkage forms a parallelogram.

Referring to the embodiment of FIGS. 18 and 20, as the four bar linkages **428** are rotated, the monitor support **408** and monitor **416** supported thereon are rotated about a horizontal axis, with the monitor **412** and monitor support **408** both rotating and translating as the linkage rotates. Therefore, as the monitor **416** is moved in the horizontal direction, the monitor support **408** and monitor **416** are rotated. For example, in one embodiment, the top corner **422** of the monitor is moved approximately six (6) inches in a horizontal direction, with the monitor being rotated approximately 3° in a clockwise direction when viewing the monitor from the right side. In addition, the top corner **422** of the monitor moves in the vertical direction approximately 1.50 inches, with the center of gravity **426** moving approximately 1.15 inches. Because of the rotation, however, the front edge **424** of the worksurface **412** is moved only about 4.9 inches in a horizontal direction, with a movement of approximately 2.5 inches in the vertical direction. The user force required to move the monitor (assuming 75 lbs) having a center of gravity positioned from between ½ inch and 11 inches from the front of the monitor support is –7 to + 45 pounds, which may require a counterbalance mechanism, such a spring.

With reference to FIG. 19, the monitor support **408** and monitor **416** are not rotated due to the parallelogram configuration of the linkage assembly. Instead, the monitor **416**, monitor support **408** and worksurface **412** are only translated in horizontal and vertical directions. In particular, the components are moved approximately 6.05 inches in a horizontal direction, with a vertical movement of approximately 1.87 inches. Accordingly, in this embodiment, the worksurface **412** moves the same horizontal distance as the monitor support **408**, not a lesser amount. The user force required to move the monitor (assuming 75 lbs) having a center of gravity positioned from between ½ inch and 11 inches from the front of the monitor support is 0 to + 49 pounds, which is independent of the location of the center of gravity. Again, a counterbalance may be required.

Referring to FIGS. 9-11, the base **104** includes a worksurface member **200** and a support member **202** secured to the worksurface member **200**. The support member has an upper surface **204** that forms an angle with a horizontal plane, which is defined in this embodiment by the surface of the worksurface member **206**. Preferably, the upper surface **204** is angled between about 5 degrees and about 45 degrees relative to the horizontal plane, and in one embodiment at about 15 degrees from the horizontal plane. The worksurface **106** is translatably mounted on the support member **202**, as described above. Accordingly, the worksurface **106**, and in particular the upper surface of the worksurface **106** that the monitor support is supported on, is also positioned at an angle relative to the horizontal plane. In this way, the worksurface **106** and the monitor support **122** both move downwardly as they move forwardly. In one embodiment, the change in vertical height relative to the change in horizontal depth is at about a 1:3 ratio. This movement further accommodates and mimics the movement of the user.

The monitor support **122** includes one or more upper support surfaces **123** that supports the monitor. In one embodiment, the upper surface **123** is maintained in a substantially horizontal plane, and forms an angle relative to the bottom of the monitor support that is substantially the same as the angle of the worksurface relative to the horizontal plane. In this way, the monitor is maintained on a horizontal plane even as it moves downwardly and forwardly. In other embodiments, the upper support surface is also formed at an angle, with the monitor support being configured with a catch, latch, friction or bonding device to prevent the monitor from sliding off of the support surface.

The ability of the monitor support **22** to move at a greater rate and to a greater distance than the worksurface **6** can be important for users sitting in a tilting chair. In particular, the hands of a user typically travel about half (½) the distance of the head of the user when the user tilts rearwardly in the chair. Accordingly, the workstation **2** maintains a substantially constant and ideal distance between the user's eyes and the monitor **38** supported on the monitor support **22**, regardless of the tilt position of the user, as the worksurface **6** is moved to accommodate the position of the hands of the user.

Referring to FIGS. 4-6, the monitor support **22** has a pivotable platform **50** on which the monitor is supported. The platform has a front tip **59**, which engages the base of a monitor supported on the platform. The platform **50** has a pair of pivot pins **52** that are received in a pair of guides **54** formed in sidewalls **56** of a monitor support base **58**. A pivot gear **60** is rotatably mounted to the platform **50** and engages a linear gear **62** translatably mounted to the monitor support base **58**. An actuator **64**, such as spring or cable, is coupled to the linear gear **62**. In operation, the actuator **64**, which can be mounted to the front of the worksurface adjacent the user, is operated to move the linear gear **62** in a fore-aft direction, thereby rotating the pivot gear **60** and platform **50** relative to the monitor support base **58**. In this way, the angle of the monitor can be easily adjusted by the user, which further allows the user to maintain the same position and orientation of the monitor relative to their eyes. It should be understood that the pivot gear can be mounted on the base and the linear gear mounted on the platform. In addition, it should be understood that other devices, for example other gear configurations including various rotary gear components and various friction or clutch devices, can be interfaced between the platform and base to control the pivoting of the platform.

In another aspect, the side walls **56** of the monitor support base **58** are provided with several sets of guides **54**, such that the monitor platform **50** can be initially set at different discrete height levels relative to the monitor support base **58** and moveable worksurface **6**, thereby providing an additional gross height adjustment capability.

Referring to FIGS. 1, 2, 4 and 7, the worksurface **6** includes a primary worksurface component **68** and an auxiliary component **70**, configured in one embodiment as a pivotable keyboard tray. The auxiliary component **70** is rotatably mounted to a front portion of the primary worksurface component **68** about a rotation axis **72**. In one embodiment, the auxiliary component **70** is provided with a pivot gear **74** rotatable about rotation axis **72**. A gear jam **76** is moveably mounted, for example by translation or rotation/pivoting, to the primary component **68**. An actuator **80** such as a cable, lever pull or spring, or

combinations thereof, is accessible to the user and is mounted to the worksurface component **68**. The actuator **80**, is connected to the gear jam **76**. The user actuates the actuator **80** to move the gear jam **76**. The gear jam **76** is moveable between an engaged position, wherein the gear jam **76** engages the pivot gear **74** and thereby immobilizes the auxiliary component, and a disengaged position, wherein the auxiliary component can be pivoted or rotated to a desired position. In this way, the user can maintain the same angle between their hands and a keyboard positioned on the auxiliary component regardless of the tilt position of the user. It should be understood that other devices, including various gear configurations and friction or clutch devices, can be interfaced between the primary and auxiliary components to control and/or limit the pivoting of the auxiliary component.

Although the present invention has been described with reference to preferred embodiments, those skilled in the art will recognize that changes may be made in form and detail without departing from the spirit and scope of the invention. As such, it is intended that the foregoing detailed description be regarded as illustrative rather than limiting and that it is the appended claims, including all equivalents thereof, which are intended to define the scope of the invention.